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Engineering Corynebacterium Glutamicum Chassis for Synthetic Biology, Biomanufacturing, and Bioremediation - Akihiko Kondo 2022-07-01

Sustainable Production of Ethnic Alcoholic Beverages - Nicolás Oscar Soto-Cruz 2022-03-31

Packed Column SFC - T A Berger 2007-10-31
Packed Column SFC is the third title to be published in this series and has been produced as a result of the dramatic re-emergence, in the last three years, of packed column instrumentation. This has led to a redefinition of the technique and an urgent need for a practical guide that deals with its subtleties. This book fulfils that need and deals exclusively with packed column SFC. It places the emphasis on understanding the underlying chemistry in order to perform rapid, systematic optimizations and provides many practical tips to help the new user avoid problems unique to SFC. It also proposes a detailed scheme for method development and provides lists of prioritized guidelines. The book clears up some of the confusion that surrounds the analytical use of supercritical fluids and assists the user in understanding the power and utility of this technique. Detailed chapters cover the most promising new application areas for packed column SFC, which are often overlooked in the mainstream chromatography literature. Like the other books in this popular series, Packed Column SFC will prove an invaluable guide and is essential reading for graduates, postgraduates and researchers with interests in pharmaceuticals, agricultural chemistry, small polar drug molecules, chiral analysis, environmental chemistry, and chromatography/instrumentation.
Insights into Microbe-Microbe Interactions in Human Microbial Ecosystems: Strategies to be Competitive - Clara G. de los Reyes-Gavilán 2016-12-01
All parts of our body having communication with the external environment such as the skin, vagina, the respiratory tract or the gastrointestinal tract are colonized by a specific microbial community. The colon is by far the most densely populated organ in the human body. The pool of microbes inhabiting our body is known as “microbiota” and their collective genomes as “microbiome”. These microbial ecosystems regulate important functions of the host, and their functionality and the balance among the diverse microbial populations is essential for the maintenance of a “healthy status”. The impressive development in recent years of next generation sequencing (NGS) methods have made possible to determine the gut microbiome

composition. This, together with the application of other high throughput omic techniques and the use of gnotobiotic animals has greatly improved our knowledge of the microbiota acting as a whole. In spite of this, most members of the human microbiota are largely unknown and remain still uncultured. The final functionality of the microbiota is depending not only on nutrient availability and environmental conditions, but also on the interrelationships that the microorganisms inhabiting the same ecological niche are able to establish with their partners, or with their potential competitors. Therefore, in such a competitive environment microorganisms have had to develop strategies allowing them to cope, adapt, or cooperate with their neighbors, which may imply notable changes at metabolic, physiological and genetic level. The main aim of this Research Topic was to contribute to better understanding complex interactions among microorganisms residing in human microbial habitats.

Actinobacteria, a Source of Biocatalytic Tools - Dirk Tischler 2019-08-12

Actinobacteria (Actinomycetes) represent one of the largest and most diverse phyla among Bacteria. The remarkable diversity is displayed by various lifestyles, distinct morphologies, a wide spectrum of physiological and metabolic activities, as well as genetics. Interestingly, most Actinobacteria have a high GC-content (ranging from 51% to >70%) and belong to Gram-positive or Gram-variable type microbes. Many species are well known for large genomes which may be of linear style as in case of rhodococci or circular. Many of those harbor linear megaplasmids as a kind of genetic storage device. Frequently gene redundancy is reported and in most cases the evolutionary history or a functional role remains enigmatic. Nevertheless these large genomes and megaplasmids provide access to a number of potential (homologous) biocatalysts which await elucidation. Actinobacteria are well known for their biotechnological potential which is exemplarily described for amino acid producing Corynebacteria, secondary metabolite producing Streptomyces, pathogenic targets as Nocardia and Mycobacteria, carotenoid building Micrococcus strains, acid fermenting Propionibacteria, health and food related Bifidobacterium strains, rubber degrading Gordonia species, and organic pollutant degrading rhodococci among others. In many cases individual pathways or enzymes can be modified or recombinantly employed for biocatalysis. Even some genetic tools to work directly in those microbes have been successfully used as for example in Corynebacterium or in Rhodococcus species. During the last decade more and more genomes have been sequenced and made available for data mining and become accessible by state of the art genomic manipulation methods as minimal genomes, knock-out or artificial evolution. With respect to this large and ancient phylum many questions can be asked either from a scientific or industrial point of view. In order to provide some crystallization points we like to raise some examples as follows. How small can be an actinobacterial genome? What is the driving force to comprise large and repetitive genomes/megaplasmids? What is needed to generate an actinobacterial power house for industry? Can we annotate novel biocatalysts from scratch and improve functional annotation? What are common and different features with respect to other bacteria and/or fungi? How many novel antibiotics are hidden among Actinobacteria? Is there more potential among extremophile members or are they only specialized? Here especially the production of natural compounds is of high interest.

Microbial production of cis,cis-muconic acid from hydrothermally converted lignocellulose - Sören Starck 2022-03-17

Cis,cis-muconic acid receives increasing interest to be produced from renewables. Catabolic microbial pathways can be tailored to accumulate cis,cis-muconic acid from a range of aromatic compounds. A renewable, sustainable and under-valued resource for aromatics is lignin. In this work, using

hydrothermal conversion, lignin was depolymerized into hydrolysates with up to 615 mM aromatic monomer content. Catechol-rich hydrolysates were generated for bioconversion with the previously developed cis,cis-muconic acid producers P. putida MA-9 and C. glutamicum MA-2, whereas hydrolysates were guaiacol-rich for Amycolatopsis sp. MA-2. When grown with glucose as a co-substrate, C. glutamicum MA-2 yielded 2.6 g L^{-1} (100 % yield) cis,cis-muconic acid from catechol. Towards an even more sustainable process, glucose was then replaced by hemicellulose, a non-food renewable. Hemicellulose, a co-constituent of lignin in lignocellulose, was hydrothermally converted into a mixture of C_5 and C_6 sugars. As hemicellulose was mainly converted into xylose (91 % yield), C. glutamicum MA-2 was engineered to utilize this pentose. Fed-batch bioconversion on a catechol-rich Kraft lignin hydrolysate as well as a hemicellulose hydrolysate using C. glutamicum MA-4 yielded 4 g L^{-1} muconic acids. As the developed process was non-competitive to feed and food, it is a promising starting point for future application in bio-based industrial settings.

Efficient Biosynthesis of Organic Acids from Renewable Materials - Hui Wu 2021-08-03

Biofuel and Bioenergy Technology - Wei-Hsin Chen 2019-03-14

The subject of this book is “Biofuel and Bioenergy Technology”. It aims to publish high-quality review and research papers, addressing recent advances in biofuel and bioenergy. State-of-the-art studies of advanced techniques of biorefinery for biofuel production are also included. Research involving experimental studies, recent developments, and novel and emerging technologies in this field are covered. This book contains twenty-seven technical papers which cover diversified biofuel and bioenergy technology-related research that have shown critical results and contributed significant findings to the fields of biomass processing, pyrolysis, bio-oil and its emulsification; transesterification and biodiesel, gasification and syngas, fermentation and biogas/methane, bioethanol and alcohol-based fuels, solid fuel and biochar, and microbial fuel cell and power generation development. The published contents relate to the most important techniques and analyses applied in the biofuel and bioenergy technology.

Novel Enzyme and Whole-Cell Biocatalysts - Anwar Sunna 2020-11-04

The concept of a circular economy relies on waste reduction, valorization, and recycling. Global trends for “green” synthesis of chemicals have positioned the field of enzyme technology and biocatalysis (multi-enzymes and whole-cells) as an alternative for the synthesis of more social- and environmentally-responsible bio-based chemicals. Recent advances in synthetic biology, computational tools, and metabolic engineering have supported the discovery of new enzymes and the rational design of whole-cell biocatalysts. In this book, we highlight these current advances in the field of biocatalysis, with special emphasis on novel enzymes and whole-cell biocatalysts for applications in several industrial biotechnological applications.

Food Authentication - Raúl González-Domínguez 2020-04-15

Multiple factors can directly influence the chemical composition of foods and, consequently, their organoleptic, nutritional, and bioactive properties, including their geographical origin, the variety or breed, as well as the conditions of cultivation, breeding, and/or feeding, among others. Therefore, there is a great interest in the development of accurate, robust, and high-throughput analytical methods to guarantee the authenticity and traceability of foods. For these purposes, a large number of sensorial, physical, and chemical approaches can be used, which must be normally combined with advanced statistical tools. In this vein, the aim of the Special Issue “Food Authentication: Techniques, Trends, and Emerging Approaches” is to gather original research papers

and review articles focused on the development and application of analytical techniques and emerging approaches in food authentication. This Special Issue comprises 12 valuable scientific contributions, including one review article and 11 original research works, dealing with the authentication of foods with great commercial value, such as olive oil, Iberian ham, and fruits, among others.

Preparative Liquid Chromatography - B.A. Bidlingmeyer 1987-07-01

This volume provides a straightforward approach to isolation and purification problems with a thorough presentation of preparative LC strategy including the interrelationship between the input and output of the instrumentation, while keeping to an application focus. The book stresses the practical aspects of preparative scale separations from TLC isolations through various laboratory scale column separations to very large scale production. It also gives a thorough description of the performance parameters (e.g. throughput, separation quality, etc.) as a function of operational parameters (e.g. particle size, column size, solvent usage, etc.). Experts in the field have contributed a well balanced presentation of separation development strategies from preparative TLC to commercial preparative process with practical examples in a wide variety of application areas such as drugs, proteins, nucleotides, industrial extracts, organic chemicals, enantiomers, polymers, etc.

Carboxylic Acid Production - Gunnar Lidén 2018-04-13

This book is a printed edition of the Special Issue "Carboxylic Acid Production" that was published in Fermentation

Environmental Forensics for Persistent Organic Pollutants - Gwen O'Sullivan 2013-11-20

Environmental Forensics for Persistent Organic Pollutants represents the state-of-the-art in environmental forensics in relation to persistent organic pollutants (POPs). The book is a complete reference for practitioners and students, covering a range of topics from new analytical techniques to regulatory and legal status in the global community. Through case studies from leading international experts, real-world issues — including the allocation of responsibility for release into the environment — are resolved through the application of advanced analytical and scientific techniques. This book introduces and assesses the development of new techniques and technologies to trace the source and fate of newly emerging and classic POPs (perfluoroalkyl substances, brominated flame retardants, organochlorine pesticides, perfluorinated chemicals, polycyclic aromatic hydrocarbons, and polychlorinated biphenyls) in environmental media, including atmospheric, marine, freshwater, and urban environments. Real-world case studies show the application of advanced analytical and scientific techniques Discussion of GC*GC provides an introduction and assessment of a novel technique from leaders in the field Introduces the development of new analytical techniques (such as 2-D GC*HC and LC*LC) to trace the source and fate Raises awareness about the health and environmental impact of persistent organic pollutants (POPs) Outlines the development of international measures to control POPs so that chemists can understand the legal issues

Fruit Responses to Biotic and Abiotic Stressors During Postharvest - Claudia Anabel Bustamante 2022-06-21

Phytochemical Changes in Vegetables During Post-harvest Storage and Processing, and Implications for Consumer Benefits - Dharini Sivakumar 2022-11-16

Proceedings of the 2012 International Conference on Applied Biotechnology (ICAB 2012) - Tong-Cun Zhang 2013-11-29

The 2012 International Conference on Applied Biotechnology (ICAB 2012) was held in Tianjin, China on October 18-19, 2012. It provides not only a platform for domestic and foreign researchers to exchange their ideas and experiences with the application-oriented research of biotechnology, but

also an opportunity to promote the development and prosperity of the biotechnology industry. The proceedings of ICAB 2012 mainly focus on the world's latest scientific research and techniques in applied biotechnology, including Industrial Microbial Technology, Food Biotechnology, Pharmaceutical Biotechnology, Environmental Biotechnology, Marine Biotechnology, Agricultural Biotechnology, Biological Materials and Bio-energy Technology, Advances in Biotechnology, and Future Trends in Biotechnology. These proceedings are intended for scientists and researchers engaging in applied biotechnology. Professor Pingkai Ouyang is the President of the Nanjing University of Technology, China. Professor Tongcun Zhang is the Director of the Key Laboratory of Industrial Fermentation Microbiology of the Ministry of Education at the College of Bioengineering, Tianjin University of Science and Technology, China. Dr. Samuel Kaplan is a Professor at the Department of Microbiology & Molecular Genetics at the University of Texas at Houston Medical School, Houston, Texas, USA. Dr. Bill Skarnes is a Professor at Wellcome Trust Sanger Institute, United Kingdom.

Frontiers in Earth Science - Editor's Choice 2017 - Valerio Acocella 2018-03-29

2017 has been an exciting year for our innovative open access journal Frontiers in Earth Science: many new articles have been published and are now indexed in Web of Science (ESCI), new sections have opened for submissions (including Solid Earth Geophysics), and our Editorial Board has been successfully leading the peer review process and providing comprehensive reviews to our authors. Have a look at our archive to read about the feeding habits of dinosaurs, human influence on in the African humid period, volcanic hazard models, or how glaciers flowing into the ocean surrounding Greenland have changed over time! Launched at the end of 2013, our Journal consists of several specialties whose number has increased with time and currently stands at 19, also including a few specialties co-listed in other fields (https://www.frontiersin.org/journals/earth-science#). The present selection is not exhaustive as new ones are being launched and/or are under consideration for development. This growth has been paralleled by a yearly increase in the number of contributions and the Editorial Board members, reflecting the health of the Journal. Now also indexed in Web of Science - Emerging Sources Citation Index (ESCI), Frontiers in Earth Science is ambitious to become the leading open access journal in its field. The idea of creating an Editor's Choice eBook has been in our minds for a while as we wanted to create an environment for the Chief Editors to highlight their choice of representative papers in the Journal - we are happy to present now our first edition. The eBook offers a quick, though representative, window into the different specialties, giving additional visibility to some of the most interesting studies published in 2016 and 2017. It provides a glimpse into the state of the art of Earth Science on the cusp of 2020. Earth Science studies the different spheres of the Earth (geosphere, atmosphere, hydrosphere and, partly, biosphere) and, as such, it provides a holistic perspective of our planet. This discipline, in addition to understanding our environment, enables us to face major natural challenges, such as improving the management of natural resources, promoting environmental sustainability and forecasting and managing natural hazards (Acocella, 2015, and references therein). On this basis, the contributions grouped in this eBook, even though appearing distinct in subject, methods, goal and impact, should be considered as different aspects of the same system. Indeed, the selection of these contributions aims to capture a multidisciplinary and common understanding of our planet, with its interconnected processes and challenges. It is important to note that, in many cases, it has not been easy to select a representative study per specialty, and thus the papers included in this eBook should therefore not be considered as the representative ones, but rather

as a concise selection of key papers. We hope you enjoy reading our first edition of the Editor's Choice eBook! Jessica (Journal Manager), and Valerio (Field Chief Editor)

HPLC for Pharmaceutical Scientists - Yuri V. Kazakevich 2007-02-16

HPLC for Pharmaceutical Scientists is an excellent book for both novice and experienced pharmaceutical chemists who regularly use HPLC as an analytical tool to solve challenging problems in the pharmaceutical industry. It provides a unified approach to HPLC with an equal and balanced treatment of the theory and practice of HPLC in the pharmaceutical industry. In-depth discussion of retention processes, modern HPLC separation theory, properties of stationary phases and columns are well blended with the practical aspects of fast and effective method development and method validation. Practical and pragmatic approaches and actual examples of effective development of selective and rugged HPLC methods from a physico-chemical point of view are provided. This book elucidates the role of HPLC throughout the entire drug development process from drug candidate inception to marketed drug product and gives detailed specifics of HPLC application in each stage of drug development. The latest advancements and trends in hyphenated and specialized HPLC techniques (LC-MS, LC-NMR, Preparative HPLC, High temperature HPLC, high pressure liquid chromatography) are also discussed.

A Sequential Expression System for Identifying Effectors of in Vitro Protein Synthesis and Folding - Kim Anh Woodrow 2005

Carbohydrate Analysis - Z. El Rassi 1994-11-11

Carbohydrates and glycoconjugates play an important role in several life processes. The wide variety of carbohydrate species and their inherent polydispersity and heterogeneity require separation techniques of high resolving power and high selectivity such as high performance liquid chromatography (HPLC) and capillary electrophoresis (HPCE). In the last decade HPLC, and recently HPCE methods have been developed for the high resolution and reproducible quantitation of carbohydrates. Despite the importance of these two column separation technologies in the area of carbohydrates, no previous book describes specialized methods for the separation, purification and detection of carbohydrates and glycoconjugates by HPLC and HPCE. Therefore, the objective of the present book is to provide a comprehensive review of carbohydrate analysis by HPLC and HPCE by covering analytical and preparative separation techniques for all classes of carbohydrates including mono- and disaccharides; linear and cyclic oligosaccharides; branched heterooligosaccharides (e.g., glycans, plant-derived oligosaccharides); glycoconjugates (e.g., glycolipids, glycoproteins); carbohydrates in food and beverage; compositional carbohydrates of polysaccharides; carbohydrates in biomass degradation; etc. The book will be of interest to a wide audience, including analytical chemists and biochemists, carbohydrate, glycoprotein and glycolipid chemists, molecular biologists, biotechnologists, etc. It will also be a useful reference work for both the experienced analyst and the newcomer as well as for users of HPLC and HPCE, graduates and postdoctoral students.

Metabolomics Perspectives for Clinical Medicine - Michal Jan Markuszewski 2022-02-07

Amino Acid Analysis - Michail A. Alterman 2011-12-02

Amino Acid Analysis (AAA) is an integral part of analytical biochemistry. In a relatively short time, the variety of AAA methods has evolved dramatically with more methods shifting to the use of mass spectrometry (MS) as a detection method. Another new aspect is miniaturization. However, most importantly, AAA in this day and age should be viewed in the context of Metabolomics as a part of Systems Biology. Amino Acid Analysis: Methods

and Protocols presents a broad spectrum of all available methods allowing for readers to choose the method that most suits their particular laboratory set-up and analytical needs. In this volume, a reader can find chapters describing general as well as specific approaches to the sample preparation. A number of chapters describe specific applications of AAA in clinical chemistry as well as in food analysis, microbiology, marine biology, drug metabolism, even archeology. Separate chapters are devoted to the application of AAA for protein quantitation and chiral AAA. Written in the highly successful Methods in Molecular BiologyTM series format, chapters contain introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and notes on troubleshooting and avoiding known pitfalls. Authoritative and accessible, Amino Acid Analysis: Methods and Protocols provides crucial techniques that can be applied across multiple disciplines by anyone involved in biomedical research or life sciences.

Antioxidants in Foods - Isabel Seiquer 2021-06-22

Antioxidants in food have a dual role; on the one hand, they preserve the quality and shelf life of food products; on the other hand, they function as an external aid, helping to defend our living cells from the threat of oxidative stress. Therefore, foods rich in antioxidants are a useful tool to reduce morbidity and prevent degenerative diseases. Consequently, research related to antioxidants is continually growing. This book brings together 21 articles regarding the latest advances in the most relevant fields of food antioxidant research; from the identification and characterization of new active components, to their molecular mechanisms and the scientific evidence of their clinical use and effectiveness.

Book of Abstracts of the 71st Annual Meeting of the European Federation of Animal Science - Scientific Committee 2020-11-21

This Book of Abstracts is the main publication of the 71st Annual Meeting of the European Federation of Animal Science (EAAP). It contains abstracts of the invited papers and contributed presentations of the sessions of EAAP's eleven Commissions: Animal Genetics, Animal Nutrition, Animal Management and Health, Animal Physiology, Cattle Production, Sheep and Goat Production, Pig Production, Horse Production and Livestock Farming Systems, Insects and Precision Livestock Farming.

Twenty-Seventh Symposium on Biotechnology for Fuels and Chemicals - James D. McMillan 2007-11-16

industry, and 22% were from government. A total of oral presentations (including Special Topic presentations) and 329 poster presentations were delivered. The high number of poster submissions required splitting the poster session into two evening sessions. (Conference details are posted at http://www.eere.energy.gov/biomass/biotech_symposium/.) Almost 35% of the attendees were international, showing the strong and building worldwide interest in this area. Nations represented included Australia, Austria, Belgium, Brazil, Canada, Central African Republic, China, Denmark, Finland, France, Gambia, Germany, Hungary, India, Indonesia, Italy, Japan, Mexico, The Netherlands, New Zealand, Portugal, South Africa, South Korea, Spain, Sweden, Thailand, Turkey, United Ki- dom, and Venezuela, as well as the United States. One of the focus areas for bioconversion of renewable resources into fuels is conversion of lignocellulose into sugars and the conversion of s- ars into fuels and other products. This focus is continuing to expand toward the more encompassing concept of the integrated multiproduct biorefinery--where the production of multiple fuel, chemical, and energy products occurs at one site using a combination of biochemical and ther- chemical conversion technologies. The biorefinery concept continues to grow as a unifying framework and vision, and the biorefinery theme f- tured prominently in many talks and presentations. However, another emerging theme was the importance of examining and optimizing the entire biorefining process rather

than just its bioconversion-related elements.

Practical HPLC Methodology and Applications - Brian A. Bidlingmeyer 1993-05-06

Of related interest. Trace and Ultratrace Analysis by HPLC Satinder Ahuja Written by a leading scientist in the field, this monograph provides the first definitive and technically up-to-date treatment of the theory, equipment, and applications of chemistry's most powerful reliable analytical technique. Coverage includes an encyclopedic compendium of common substances that require trace and ultratrace analysis, and features clear discussion of such important topics as considerations for HPLC equipment, sensitive detectors, sample preparation, method development, selectivity and computer-based optimizations, optimizing detectability, and much more. 1991 (0 471-51419-5) 432 pp. High Performance Liquid Chromatography in Biotechnology Edited by William S. Hancock Analytical chemists, biochemists, and chemical engineers will find this up-to-date guide to HPLC's recent developments essential for enhancing on-the-job technical expertise. Extensive coverage includes the broad applications of HPLC, ranging from major chromatographic techniques (including reversed phase, ion exchange, affinity and hydrophobic interaction chromatography) to specific separations such as those in monoclonal antibody and nucleic acid purification. Techniques for quality control programs and advanced technology are also discussed. 1990 (0 471-82584-0) 564 pp. Unified Separation Science J. Calvin Giddings This advanced text/monograph brings together for the first time the variety of techniques used for chemical separations by outlining their common underlying mechanisms. The mass transport phenomena underlying all separation processes are developed in a simple physical-mathematical form, facilitating analysis of alternative separation techniques and the factors integral to separation power. The first six chapters provide background material applicable to a wide range of separation methods, while the final five chapters illustrate specific techniques and methods. 1991 (0 471-52089-6) 320 pp.

Laboratory Guide to the Methods in Biochemical Genetics - Nenad Blau 2008-05-31

This manual deals specifically with laboratory approaches to diagnosing inborn errors of metabolism. The key feature is that each chapter is sufficiently detailed so that any individual can adopt the described method into their own respective laboratory.

Biodiversity of Vegetable Crops, A Living Heritage - Massimiliano Renna 2019-04-09

Intensive agriculture has generally resulted in higher productivity, but also in a trend towards decreasing levels of agro-biodiversity, which represents a key point in ensuring the adaptability and resilience of agro-ecosystems in the global challenge to produce more and better food in a sustainable way. The biodiversity of vegetable crops includes genetic diversity—both as species diversity (interspecific diversity) and as a diversity of genes within a species (intraspecific diversity) with regard to the vegetable varieties grown—and the diversity of agro-ecosystems (agro-biodiversity). The purpose of this Special Issue is to publish high-quality research papers addressing recent progress and perspectives on different aspects related to the biodiversity of vegetable crops. Original, high-quality contributions that have not yet been published, or that are not currently under review by other journals have been sought. The papers in this Special Issue cover a broad range of aspects and report recent research results regarding agro-biodiversity, which continues to be of significant relevance for both genetic and agricultural applications. All contributions are of significant relevance and could stimulate further research in this area.

Linking Optical and Chemical Properties of Dissolved Organic Matter in Natural Waters - Christopher L. Osburn 2017-01-17

A substantial increase in the number of studies using the optical properties (absorbance and fluorescence) of dissolved organic matter (DOM) as a

proxy for its chemical properties in estuaries and the coastal and open ocean has occurred during the last decade. We are making progress on finding the actual chemical compounds or phenomena responsible for DOM's optical properties. Ultrahigh resolution mass spectrometry, in particular, has made important progress in making the key connections between optics and chemistry. But serious questions remain and the last major special issue on DOM optics and chemistry occurred nearly 10 years ago. Controversies remain from the non-specific optical properties of DOM that are not linked to discrete sources, and sometimes provide conflicting information. The use of optics, which is relatively easier to employ in synoptic and high resolution sampling to determine chemistry, is a critical connection to make and can lead to major advances in our understanding of organic matter cycling in all aquatic ecosystems. The contentions and controversies raised by our poor understanding of the linkages between optics and chemistry of DOM are bottlenecks that need to be addressed and overcome.

Interdisciplinary Approaches to Improve Quality of Soft Fruit Berries - Brian Farneti 2020-12-01

This eBook is a collection of articles from a Frontiers Research Topic. Frontiers Research Topics are very popular trademarks of the Frontiers Journals Series: they are collections of at least ten articles, all centered on a particular subject. With their unique mix of varied contributions from Original Research to Review Articles, Frontiers Research Topics unify the most influential researchers, the latest key findings and historical advances in a hot research area! Find out more on how to host your own Frontiers Research Topic or contribute to one as an author by contacting the Frontiers Editorial Office: frontiersin.org/about/contact.

DNA Microarrays, Part A: Array Platforms and Wet-Bench Protocols - 2011-08-19

Modern DNA microarray technologies have evolved over the past 25 years to the point where it is now possible to take many million measurements from a single experiment. These two volumes, Parts A & B in the Methods in Enzymology series provide methods that will shepard any molecular biologist through the process of planning, performing, and publishing microarray results. Part A starts with an overview of a number of microarray platforms, both commercial and academically produced and includes wet bench protocols for performing traditional expression analysis and derivative techniques such as detection of transcription factor occupancy and chromatin status. Wet-bench protocols and troubleshooting techniques continue into Part B. These techniques are well rooted in traditional molecular biology and while they require traditional care, a researcher that can reproducibly generate beautiful Northern or Southern blots should have no difficulty generating beautiful array hybridizations. Data management is a more recent problem for most biologists. The bulk of Part B provides a range of techniques for data handling. This includes critical issues, from normalization within and between arrays, to uploading your results to the public repositories for array data, and how to integrate data from multiple sources. There are chapters in Part B for both the debutant and the expert bioinformatician. Provides an overview of platforms Includes experimental design and wet bench protocols Presents statistical and data analysis methods, array databases, data visualization and meta-analysis

Preparative and Production Scale Chromatography - G. Ganetsos 2019-11-11

Describes the latest developments in the scaling-up and application of chromatographic operations and demonstrates that production-scale chromatography is a powerful and invaluable separation process. The book covers every important process design and reveals actual, immediately applicable techniques and is designed to appeal to design, chemical/biochemical, and research and development engineers, process development managers, bioprocess technologists, analytical and

clinical chemists and biochemists, pharmacists, and upper-level undergraduate, graduate, and continuing-education students in these disciplines.

GC Inlets - Matthew S. Klee 1990-02-01

Biofuels and Biochemicals Production - Thaddeus Ezeji 2018-04-13

This book is a printed edition of the Special Issue "Biofuels and Biochemicals Production" that was published in Fermentation

Handbook of Alcoholic Beverages, 2 Volume Set - Alan J. Buglass 2011-02-14

HANDBOOK OF ALCOHOLIC BEVERAGES A comprehensive two-volume set that describes the science and technology involved in the production and analysis of alcoholic beverages HANDBOOK OF ALCOHOLIC BEVERAGES Technical, Analytical and Nutritional Aspects At the heart of all alcoholic beverages is the process of fermentation, particularly alcoholic fermentation, whereby sugars are converted to ethanol and many other minor products. The Handbook of Alcoholic Beverages tracks the major fermentation process, and the major chemical, physical and technical processes that accompany the production of the world's most familiar alcoholic drinks. Indigenous beverages and small-scale production are also covered to a significant extent. The overall approach is multidisciplinary, reflecting the true nature of the subject. Thus, aspects of biochemistry, biology (including microbiology), chemistry, health science, nutrition, physics and technology are all necessarily involved, but the emphasis is on chemistry in many areas of the book. Emphasis is also on more recent developments and innovations, but there is sufficient background for less experienced readers. The approach is unified, in that although different beverages are dealt with in different chapters, there is extensive cross-referencing and comparison between the subjects of each chapter. Appropriate for food professionals working in the development and manufacture of alcohol-based drinks, as well as academic and industrial researchers involved in the development of testing methods for the analysis and regulation of alcohol in the drinks industry. Divided into five parts, this comprehensive two-volume work presents: INTRODUCTION, BACKGROUND AND HISTORY: a simple introduction to the history and development of alcohol and some recent trends and developments. FERMENTED BEVERAGES: BEERS, CIDERS, WINES AND RELATED DRINKS: the latest innovations and aspects of the different fermentation processes used in beer, wine, cider, liqueur wines, fruit wines, low-alcohol and related beverages. SPIRITS: covers distillation methods and stills used in the production of whisky, cereal- and cane-based spirits, brandy, fruit spirits and liqueurs. ANALYTICAL METHODS: covering the monitoring of processes in the production of alcoholic beverages, as well as sample preparation, chromatographic, spectroscopic, electrochemical, physical, sensory and organoleptic methods of analysis. NUTRITION AND HEALTH ASPECTS RELATING TO ALCOHOLIC BEVERAGES: includes a discussion on nutritional aspects, both macro- and micro-nutrients, of alcoholic beverages, their ingestion, absorption and catabolism, the health consequences of alcohol, and details of the additives and residues within the various beverages and their raw materials.

Contaminated Soils, Sediments and Water Volume 10 - Edward J. Calabrese 2006-11-28

Every spring, the University of Massachusetts - Amherst welcomes all "Soils Conference" Scientific Advisory Board members with open arms as we begin the planning process responsible for bringing you quality conferences year after year. With this "homecoming" of sorts comes the promise of reaching across the table and interacting with a wide spectrum of stakeholders, each of them bringing their unique perspective in support of a successful Conference in the fall. This year marks the 20^^ anniversary of what started as a couple of thoughtful scientists interested in developing partnerships that together could fuel the environmental cleanup dialogue. Since the passage

of the Superfund Law, regulators, academia and industry have come to realize that models that depend exclusively on "command and control" mandates as the operative underpinning limit our collective ability to bring hazardous waste sites to productive re-use. It is with this concern in mind that the Massachusetts Department of Environmental Protection privatized its cleanup program in 1993, spurring the close-out of over 20,000 sites and spills across the Commonwealth to date, in a manner that is both protective of human health and the environment while also flexible and responsive to varied site uses and redevelopment goals. So we gather together again, this year, to hear our collective stories and share success and challenges just as we share stories at a family gathering. Take a read through the stories contained in these proceedings.

Cooperative Adaptations and Evolution in Plant-Microbe Systems - Tatiana Matveeva 2018-11-02

Ecological and evolutionary genetics of plant-microbe interactions is of high importance for developing the plant science since the plants originated symbiotically (via incorporation of a phototrophic cyanobacterium into a heterotrophic eukaryon) and further evolve as the multipartite symbiotic systems, harboring the enormously diverse microbial communities. The Research Topic has integrated the top-level research on the genetic interactions in the plant-microbial associations required to develop the novel evolutionary approaches in the molecular and ecological genetics of different kinds of symbioses.

JIMD Reports Volume 16 - Johannes Zschocke 2014-11-05

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